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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,160	06/01/2001	Robert L. Howald	D2370	3064

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EXAMINER

YIMAM, HARUN M

ART UNIT PAPER NUMBER

2611

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/873,160

Applicant(s)

HOWALD, ROBERT L.

Examiner

Harun M. Yimam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on June 1, 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/23/02</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1- 5 and 8-11, are rejected under 35 U.S.C. 103(a) as being unpatentable over Farhan (US 6,433,906) and Miller (5,930,231).

Considering claim 1, Farhan discloses a method to recover a return path digital signal in a cable television system (column 2, lines 34-38) comprising the steps of deserializing a serial stream of digital words (see 225 in figure 2 and column 3, lines 48-52); processing the deserialized digital words (column 3, line 57 – column 4 line 4); and forwarding the processed parallel digital words to the application receiver (headend 105 in figure 1 and column 4, lines 12-14). Farhan fails to disclose receiving the serial stream of digital words with appropriate synchronization information.

In analogous art, Miller discloses a receiver that includes an input port for receiving a serial stream of digital words comprising a plurality of digital signals (column 8, lines 47-50). Miller further discloses that the receiver also carries out a

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timing recovery stage for extracting time information for each of the modulated signals (column 8, lines 55-61).

It would have been obvious to one of ordinary skill in the art to modify Farhan's system to include appropriate synchronization, as taught by Miller, for the benefit of identifying the boundaries between words and to recover timing information of the bits themselves.

As for claim 2, Farhan fails to disclose eliminating front end analog stages of the digital words; providing a digital signal interface to a digital receiver portion of a demodulator of the receiver and replacing the functionality of the front end analog stages with equivalent digital functionality.

In analogous art, Miller additionally discloses eliminating front end analog stages of the digital words (see figure 3E and column 8, lines 27-31); providing a digital signal interface to a digital receiver portion of a demodulator of the receiver (column 22, lines 64-65, column 7, lines 58-63, column 8, lines 20-26 and column 8, lines 40-43); and replacing the functionality of the front end analog stages with equivalent digital functionality (see figure 3E and column 8, lines 27-31).

It would have been obvious to one of ordinary skill in the art to modify Farhan's system to include replacing the functionality of the front end analog stages with equivalent digital functionality and provide a digital signal interface to a digital receiver

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portion of a demodulator of the receiver, as taught by Miller, for the benefit of direct digital hand-off to headend receivers—avoiding signal degradation.

Regarding claim 3, both Farhan and Miller meet its limitations. In particular, Farhan discloses that a CATV headend is preferred for performing the said method of claim 1 (headend—105 in figure 1, column 2, lines 55-58 and column 3, lines 18-19).

With regards to claim 4, Farhan discloses a method for recovering a return path digital signal in a cable television system at a CATV hub (column 3, lines 42-44 and see figure 2).

Considering claim 5, Farhan discloses a cable television system that includes a headend for receiving satellite signals that are demodulated to baseband. Farhan fails to specifically disclose that the receiver includes a digital demodulator with a digital receiver.

In analogous art, Miller discloses a method and system that comprises a baseband (**digital** signal transmission medium) demodulator coupled to a block receiver for demodulating each one of the plurality of modulated digital information signals and provides a plurality of demodulated signal outputs (column 7, lines 58-62 and column 8, lines 44-50 and column 8, lines 64-67).

It would have been obvious to one of ordinary skill in the art to modify Farhan's system to include a digital demodulator with a digital receiver, as taught by Miller, for receiving and demodulating the modulated digital signals.

With regards to claims 8-11, Miller additionally discloses a Field Programmable Gate Array (FPGA) that interfaces between an application receiver and a transport link—a digital signal processor (column 26, lines 26-35) and is incorporated in the receiver (column 26, lines 36-41). Miller further discloses that the FPGA processes the digital words (column 27, lines 21-24) and synchronization information (column 26, lines 35-41) and formats the data (column 8, lines 55-67).

It would have been obvious to one of ordinary skill in the art to modify the combined system of Farhan and Miller to include a Field Programmable Gate Array (FPGA), as further taught by Miller, for the benefit of serving as a logical translation device that formats and processes the digital words.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farhan (US 6,433,906) and Miller (5,930,231) as applied to claim 5 above, and further in view of Dapper (US 6,292,651).

As for claim 6, Farhan and Miller disclose a system and method for recovering a return path digital signal in a cable television system (column 2, lines 34-38). In

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particular, Farhan discloses a digital filter (300 in figure 3 and column 3, lines 57-60) for filtering different portions of the RF input signal (column 4, lines 4-5). Farhan and Miller fail to specifically disclose a digital filter for truncating the least significant bits to interface to the receiver.

In analogous art, Dapper discloses a digital filter (column 6, lines 61-65) for truncating (column 84, lines 13-30) the least significant bits to interface to the receiver.

It would have been obvious to one of ordinary skill in the art to modify the combined system of Farhan and Miller to include a digital filter, as taught by Dapper, for the benefit of verifying that the digital words will appropriately interface with the application receiver.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farhan (US 6,433,906) and Miller (5,930,231) as applied to claim 5 above, and further in view of Pietzold (US 6,091,765).

Considering claim 7, Farhan and Miller disclose a method and system for recovering a return path signal in a cable television system (column 2, lines 34-38). Farhan and Miller fail to disclose that the parallel word is padded with zeros if its size exceeds that of the transmission link.

In analogous art, Pietzold discloses digital words and an analog to digital converter interface— ADC (154 in figure 8) that provides weak internal pull-downs to logic '0' allowing for data widths less than a preset number of bits to be zero extended (column 13, lines 51-54).

It would have been obvious to one of ordinary skill in the art to modify the combined system of Farhan and Miller to include a zero extension, as taught by Pietzold, to control the flow of digital signals and bit length of digital parallel words.

5. Claims 12-17 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farhan (US 6,433,906) and Miller (5,930,231) in view of Bestler (US 5,517,502).

As for claim 12, Farhan discloses a method to recover a return path digital signal in a cable television system (column 2, lines 34-38) comprising the steps of converting optical digital signal to an electrical digital signal (column 2, lines 45-51); deserializing the serial stream of digital words (column 48-52); processing the deserialized digital words to interface digitally to an application receiver (column 2, lines 55-58 and column 3, lines 18-19); and forwarding the processed parallel digital words to the application receiver (column 3, lines 12-19 and column 3, lines 35-41). Farhan fails to disclose a plurality of application receivers and receiving a serial stream of digital words with appropriate synchronization information in a hybrid fiber-coax cable television system.

In analogous art, Miller discloses a plurality of receivers (column 15, lines 22-26), a receiver that includes an input port for receiving a serial stream of digital words comprising a plurality of digital signals (column 8, lines 47-50). Miller further discloses that the receiver also carries out a timing recovery stage for extracting time information for each of the modulated signals (column 8, lines 55-61).

It would have been obvious to one of ordinary skill in the art to modify Farhan's system to include appropriate synchronization, as taught by Miller, for the benefit of identifying the boundaries between words and to recover timing information of the bits themselves.

Farhan and Miller fail to disclose a hybrid fiber-coax cable television system for recovering the return path digital signal.

In analogous art, Bestler discloses a transmission medium that comprises a hybrid-fiber-coaxial (HFC) transmission network so that instantaneous transmission power must be limited to prevent laser clipping (column 12, lines 4-8).

It would have been obvious to one of ordinary skill in the art to modify the combined system of Farhan and Miller to include hybrid-fiber-coaxial (HFC) as a

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transmission medium, as taught by Bestler, for the benefit of limiting instantaneous transmission power so as to prevent laser clipping.

Claims 13-17 are rejected for the similar rejections as claims 2-6 respectively.

Claims 19-22 are rejected for the similar rejections as claims 8-11 respectively.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farhan, Miller, and Bestler as applied to claim 16 above, and further in view of Pietzold (US 6,091,765).

Regarding claim 18, Farhan and Miller disclose a method and system for recovering a return path signal in a cable television system (column 2, lines 34-38). Farhan and Miller fail to disclose that the parallel word is padded with zeros if its size exceeds that of the transmission link.

In analogous art, Pietzold discloses digital words and an analog to digital converter interface— ADC (154 in figure 8) that provides weak internal pull-downs to logic '0' allowing for data widths less than a preset number of bits to be zero extended (column 13, lines 51-54).

It would have been obvious to one of ordinary skill in the art to modify the combined system of Farhan and Miller to include a zero extension, as taught by Pietzold, to control the flow of digital signals and bit length of digital parallel words.


Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harun M. Yimam whose telephone number is 703-305-0636. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Grant can be reached on 703-305-4755. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HMY


CHRIS GRANT
PRIMARY EXAMINER